5.8 Hazards & Hazardous materials

This section addresses potential impacts associated with the physical effects of the site due to the historic storage fuel oil within the boundaries of the subject site. Any potential site contamination, including soil and groundwater, is discussed within this section. Information contained in this section is based on the Huntington Beach Generating Station Phase II Environmental Site Assessment (prepared by CH2M HILL, November 27, 1996), the Site Investigation Report for Soil and Groundwater, Huntington Beach Generating Station, Huntington Beach, California (prepared by Woodward-Clyde, May, 1998), the Preliminary Hazardous Materials Assessment for the Southeast Coastal Redevelopment Plan (prepared by RBF Consulting, January 11, 2001), and the Environmental Assessment for the Southern California Edison Huntington Beach Fuel Oil Storage Tank Removal Project (prepared by Arthur D. Little, Inc., April 20, 2000).

EXISTING CONDITIONS

PROPOSED DESALINATION FACILITY SITE

On-Site

The subject site, formerly owned and operated by Southern California Edison (SCE), is currently developed with three fuel storage tanks (two at the desalination facility area and one at the product water storage tank area). These three fuel oil storage tanks (designated the "South", "West", and "East" tanks) are 205 feet in diameter and 40 feet in height. It is believed that the South and East tanks contain approximately 200,000 to 350,000 gallons of fuel oil, while the amount of fuel oil remaining in the West tank is unknown. The exact amounts of remaining fuel within all the storage tanks would not be known until the tanks are opened and inspected. Containment berms of 10-15 feet in height surround the perimeter of each tank. The fuel oil tanks are constructed of a thin, metal external shell and an internal insulated layer approximately two inches thick. This insulation material may contain asbestos, although the existence of asbestos would not be determined until the tanks are opened and inspected.

In October and November, 1996, CH2M HILL advanced a total of 19 borings within the boundaries of the former fuel oil storage facility in which the subject site is located (four borings per fuel oil tank and three borings at the distillate fuel tank, located adjacent to the South tank). From the 19 borings, 35 soil samples and five groundwater samples were collected. Soil samples were collected from depths near the ground surface (0.5 feet below ground surface) and also at five-foot intervals to depths of approximately 10 feet below ground surface (bgs). Groundwater was encountered at depths of approximately seven to eight feet bgs within the subject site vicinity. 11 of the 35 soil samples and three of the five groundwater samples were taken surrounding the South, West, and East fuel oil storage tanks. All soil samples were analyzed for total petroleum hydrocarbons-diesel (TPH-D). TPH-D levels exceeded the Los Angeles Regional Water Quality Control Board (LARWQCB)[1] maximum soil screening level of 1,000 mg/kg, with samples as high as 65,000 mg/kg in the vicinity of the West tank and 5,200 mg/kg in the vicinity of the East tank, both at a depth of 0.5 feet bgs TPH-D was detected at concentrations of 0.51 mg/L in groundwater collected from the product water storage tank area. It is unknown whether this value exceeded LARWQCB thresholds for groundwater, as thresholds are established on a site-by-site basis.[2]

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1 The Phase II Assessment, prepared by CH2M Hill (dated 11/27/96), uses the LARWQCB *Interim Site Assessment and Cleanup Guidebook* (5/96), as a conservative screening criterion for evaluation of analytical results.

2 Yue Rong, Los Angeles Regional Water Quality Control Board, April 11, 2002.

Surrounding Uses

Additional soil and groundwater samples collected by CH2M HILL within the fuel oil storage facility but outside of project site boundaries were also analyzed for TPH-D and VOCs. TPH-D was detected above screening criteria near tanks located to the west and south of the subject site, with levels as high as 5,000 mg/kg. In addition, TPH-Diesel was detected at levels of 2.6 mg/L in groundwater samples taken from south of the project site, respectively.

A soil and groundwater investigation was performed for the AES Huntington Beach Generating Station (HBGS) (Woodward-Clyde, May, 1998), located immediately southwest of the project site. It was concluded that the screening criteria for petroleum impacted soils was not exceeded, while several metals, including antimony, arsenic, cadmium, cobalt, lead, mercury, selenium, silver, aluminum, iron, nickel, vanadium, copper, and molybdenum, exceeded average metal concentrations in soil for California. Numerous VOCs exceeded state and federal maximum contaminant levels (MCLs) in groundwater, while no SVOCs were detected above potential “threshold” concentrations in groundwater sampled at the HBGS. Various metals, including arsenic, thallium, beryllium, cadmium, chromium, copper, lead, mercury, nickel, silver, and selenium were also found to exceed existing MCLs. Other groundwater contaminants exceeding state and federal MCLs include fluoride, chloride, sulfate, and total dissolved solids (TDS).

Two other petroleum-related storage tank facilities are situated within the project vicinity, including the Pacific Holdings and CENCO Marine Terminal facilities. The Pacific Holdings tank farm is located immediately east of the subject site, consisting of three fuel oil storage tanks, each with a capacity of 21 million gallons. A baseline tank study completed by SCE indicates that TPH levels of up to 7,500 mg/kg exist on-site, resulting from occasional spraying of oil on the soil for corrosion protection. The CENCO Marine Terminal, a former crude oil storage site, is located northwest of the project site. Prior to its demolition, the facility consisted of eight crude oil storage tanks. On-site hydrocarbon contamination was detected and remediation has been completed.

The Ascon/Nesi Landfill, situated immediately east of the subject site, was utilized primarily as a dumping ground for oil drilling wastes until its closure in 1984. Evidence of petroleum and hydrocarbon related contamination exists throughout the site primarily in the form of lagoons filled with oil drilling waste liquids. CH2M HILL performed groundwater sampling near the northern border of the proposed project site and the Ascon/Nesi Landfill. TPH-D and VOCs were not detected in the groundwater samples collected, downgradient of the Ascon/Nesi Landfill site.

OFF-SITE PIPELINES AND UNDERGROUND PUMP STATIONS

Proposed Pipeline Alignments

The proposed water delivery pipeline would be up to approximately ten miles in length, extending from the proposed desalination facility to the OC-44 water transmission line within the City of Costa Mesa, east of State Route 55 (SR-55) at the intersection of Del Mar Avenue and Elden Avenue. The majority of the pipeline alignment would occur within existing public streets, easements, or other rights-of-way (ROW) in urbanized areas. Although precise pipeline alignments may be modified during final engineering analyses, the conceptual pipeline alignments are shown in Exhibit 3-3, *CONCEPTUAL PIPELINE ALIGNMENTS.*

Portions of the pipeline alignments are proposed to be installed within areas of Edison Community Center (Huntington Beach), Costa Mesa Country Club (Costa Mesa), and Fairview State Hospital (Costa Mesa). No known areas of existing hazardous materials contamination are known to exist along the proposed pipeline alignments.

OC-44 Pump Station

The OC-44 underground booster pump station is proposed to be located within an area of unincorporated Orange County, approximately 1.5 miles south of the University of California, Irvine., and 0.5 miles north of the San Joaquin Reservoir. The proposed OC-44 booster pump station site is surrounded by open space to the north, open space and residential to the east, two existing underground pump stations, open space, and residential to the west, and open space to the south. As this site is undeveloped, it is not expected to contain hazardous materials.

Coastal Junction Pump Station

The Coastal Junction underground booster pump station is proposed within the parking lot of St. Paul's Greek Orthodox Church within the City of Irvine, located at 4949 Alton Parkway. The underground pump station would be constructed within the north/northwestern portion of the church parking lot, in an area used for both parking and volleyball activities. The footprint of the proposed underground pump station would be approximately 100 feet by 100 feet, and would require a construction easement of 125 feet by 125 feet. The Coastal Junction pump station site is surrounded by the St. Paul's Church to the south, the Woodbridge Village Association to the west, an apartment complex to the east, and open space to the north. As this pump station site is developed as a parking lot adjacent to a church, hazardous materials are not anticipated to exist on-site.

IMPACTS

Significance thresholds in this section are based on the CEQA Appendix G Environmental Checklist Form as indicated below:

Significance Criteria

Under the CEQA Guidelines, a potentially significant impact in regards to hazards and hazardous materials would occur if the project caused one or more of the following to occur:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;
- Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment;
- For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, the project would result in a safety hazard for people residing or working in the project area;
- For a project within the vicinity of a private airstrip, the project would result in a safety hazard for people residing or working in the project area;
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; and/or

- Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

For a discussion of short-term, hazards/hazardous materials impacts in regards to remediation, construction, and demolition, refer to Section 5.9, *CONSTRUCTION-RELATED IMPACTS*.

LONG-TERM OPERATIONAL IMPACTS

Proposed Desalination Facility Site

Existing On-Site and Off-Site Contamination

The proposed desalination project is not anticipated to result in long-term impacts in regards to existing on- and off-site soil and groundwater contamination. The project would facilitate the remediation of fuel contamination surrounding the fuel oil storage tanks within the boundaries of the proposed subject site consistent with RWQCB and Huntington Beach City standards. In addition, demolition of the fuel storage tanks would also involve the abatement of asbestos and lead-based paint, if detected. The majority of contaminants both on- and off-site (including the Ascon/Nesi Landfill) are petroleum-based, and are not considered toxic or acutely hazardous. The proposed project is expected to have a beneficial impact in regards to long-term hazards and hazardous materials.

Project Operation

The proposed project involves the implementation of a 50 mgd seawater desalination facility, and would involve the storage, handling, and use of hazardous materials. Hazardous materials would be utilized for three components of desalination facility operation: 1) periodic cleaning of the RO membranes which filter impurities from seawater; 2) treatment of potable product water; and 3) storage of diesel fuel for emergency backup electricity generators at the off-site underground pump stations.

RO Membrane Cleaning Solution

As stated previously within Section 3.0, *PROJECT DESCRIPTION*, the accumulation of silts or scale on the RO membranes causes fouling which reduces membrane performance. The membranes would be periodically cleaned to remove these foulants and extend membrane life. Normally cleaning frequency is twice per year. To clean the membranes, a chemical cleaning solution is circulated through the membranes. The reverse osmosis system trains would be cleaned using a combination of cleaning chemicals such as industrial soaps (e.g. sodium dodecylbenzene, which is frequently used in commercially available soaps and toothpaste) and weak solutions of acids and sodium hydroxide. The cleaning process includes two steps: first, circulating a number of cleaning chemicals in a predetermined sequence through the membranes; and second, rinsing the cleaned membranes with clean water (permeate) to remove the waste cleaning solutions and prepare the membranes for normal operation. It should be noted that the actual cleaning chemicals used would be based on the observed operation and performance of the system once it is placed in operation. The cleaning solution is composed of the following chemicals:

Citric acid, two percent solution: The Material Safety and Data Sheet (MSDS) for citric acid states that acute overexposure would cause eye/skin irritation, irritation of the respiratory tract if inhaled, and nausea, vomiting, cramps, and acidic irritation of mouth and throat if ingested.

Sodium hydroxide B, 0.1 percent solution: According to the MSDS for this material, acute exposure to sodium hydroxide may cause severe burns to exposed tissues (including the eyes), injury to the entire respiratory tract if inhaled, and severe injury to the digestive system if ingested.

Sodium tripolyphosphate B, two percent solution: The MSDS for sodium tripolyphosphate indicates that acute overexposure to this material would cause minimal to moderate irritation to the eyes. Human industrial experience has not shown this chemical to be an inhalation hazard.

Sodium dodecylbenzene B, 0.25 percent solution: According to the MSDS for this material, sodium dodecylbenzene would cause irritation to exposed tissues (including the skin/eyes), and irritation to the respiratory or digestive systems, if inhaled or ingested, respectively.

Sulfuric acid B, 0.1 percent solution: The MSDS for sulfuric acid indicates that acute overexposure would result in burns to any exposed area such as the eyes, skin, and respiratory tract.

The citric acid, sodium hydroxide, sodium tripolyphosphate, and sodium dodecylbenzene would be delivered to the subject site in 400-gallon plastic containers, and would be stored in the RO building within concrete enclosures. A drainage system would be provided for chemical evacuation in the event of an accidental spill. As these chemicals would not be used frequently, they would be delivered to the site on an as-needed basis, and no more than one container per chemical would typically be stored or used at one time. Storage for sulfuric acid is described below, under *PRODUCT WATER TREATMENT MATERIALS*.

Product Water Treatment Materials

In addition to the RO membrane cleaning solution, a number of additional chemicals for water treatment would be used, stored, and handled on-site (refer to Table 5.8-1, *PRODUCT WATER TREATMENT CHEMICAL USAGE SUMMARY*). A description of each chemical product water treatment is provided below:

Sodium hypochlorite (chlorine): Chlorine would be delivered in liquid form as a 12% sodium hypochlorite solution. The liquid sodium hypochlorite would be stored in suitable tanks within an enclosed concrete containment structure with a 110-percent spill containment capability. The inner housing of the concrete containment structure would be coated for resistance to chemicals, and would be separated or divided from other chemicals to prevent mixing in the event of accidental spillage. Storage tanks would be high-density polyethylene (HDPE) or fiberglass-reinforced polyester (FRP). All piping, pumps, valves, and other ancillary equipment would be manufactured of materials compatible with this chemical. Generally, polyvinyl chloride (PVC) would be used for low-pressure piping, and lined Teflon piping would be used for high-pressure service. All metals, with the exception of titanium, silver, gold, and platinum would be avoided in pumps and pumping elements, as well as any other piece of equipment that can be expected to come in direct contact with the chlorine solution. No chlorine gas would be present on-site. According to the Material Safety Data Sheet (MSDS) for sodium hypochlorite, acute overexposure would result in strong irritation to the eyes, skin, and respiratory tract. Inhalation of fumes may cause pulmonary edema, while ingestion would cause burns to the mouth, digestive tract, and abdominal distress.

Table 5.8-1
PRODUCT WATER TREATMENT CHEMICAL USAGE SUMMARY

Chemical	Purpose	Normal Concentration	Chemical (lb/day)	Solution (gal/day)	Day Tank Capacity (gallons)	Bulk Storage Capacity* (gallons)
Sodium Hypochlorite	Prevent Biological Growth	12%	1,542	1,541	2,000	10,000
Ferric Sulfate	Enhance Filter Performance	70%	15,420	2,641	N/A	40,000
Polymer	Enhance Filter Performance	0.5%	385	9,244	10,000	5,000 lbs.
Sulfuric Acid	Positive LSI to Membranes	92%	24,672	3,215	4,000	60,000
Sodium Bisulfate	Remove Chlorine	20%	4,626	2,773	3,000	30,000
Carbon Dioxide (If required)	Stabilize Product Water	100%	12,540	NA	NA	38,000
Lime (If required)	Stabilize Product Water	15%	11,676	9,333	10,000	200,000
Sodium Hypochlorite	Disinfection	12%	667	667	1,000	10,000
Ammonia	Disinfection	29%	206	95	100	1,000

Source: Poseidon Resources Corporation, October, 2004.

* Bulk storage capacities are based on the amount of storage capacity necessary for two weeks of operation at proper design dosage rates.

Lime: Lime would be delivered in dry quicklime form and would be stored on-site in 50-ton silos. The silos would have a bag house to minimize the emission of fugitive dust particles during the loading process. The dry lime would be conveyed to a slaking chamber where it would be mixed with water to produce lime slurry. The lime slurry would then be transported to a separate mixing/dilution tank. The lime slaking system would produce a 10-18 percent lime slurry. The materials of construction for storage tanks, conveyance systems, piping systems, and all ancillary equipment would be compatible with the recommendation of the lime supplier and in compliance with all applicable City and state regulations. According to the MSDS for lime, this chemical poses an acute threat for skin and respiratory tract irritation and damage to mucous membranes of the upper respiratory tract.

Carbon Dioxide: Carbon dioxide would be delivered to the facility in liquid pressurized form by truck and stored in two 50-ton pressurized bulk liquid storage tanks which would consist of a welded steel pressure vessel designed, constructed, and tested in accordance with the requirements of the American Society of Mechanical Engineers

(ASME) Boiler and Pressure Vessel Code. Although stored as a liquid, carbon dioxide is injected into the water stream as a vapor. No special alloy or plastic distribution piping is required for the carbon dioxide delivery system. The storage tanks would be double-walled vessels in which the outer walls would provide a secondary containment. The inner vessel wall would be made of high-strength carbon steel, while the outer vessel wall material would be aluminum or structural grade carbon steel. The tanks would be equipped with stainless steel piping, nozzles, valves and other fittings and would be designed for unconfined outdoor installation. According to the MSDS, carbon dioxide initially stimulates respiration and than causes respiratory depression. Inhalation of low concentrations (three to five percent) that may occur during accidental gas release has no known permanent harmful effects. Contact with the cold gas can cause freezing of exposed tissue. All forms of carbon dioxide are noncombustible.

Ferric sulfate: Ferric sulfate or ferric chloride would be used as intake water coagulant. Ferric salts would be delivered and stored in liquid form. The coagulant would be a 70 percent concentration of ferric sulfate or ferric chloride solution. Storage tanks shall be fiberglass-reinforced polyester (FRP) or high-density cross-linked polyethylene (HDXLPE). All piping, pumps, valves, and other handling equipment would be manufactured, lined, and/or coated with Kynar7 vinylidene plastic, polyvinyl chloride, rubber, glass, ceramic materials, or other materials specifically manufactured for the intended service. All floors, walls and ancillary equipment subject to splashing would be protected with corrosion-resistant coatings. On-site storage tanks would be placed within an enclosed concrete containment structure with a 110-percent spill containment capability. The inner housing of the concrete containment structure would be coated for resistance to chemicals, and would be separated or divided from other chemicals to prevent mixing in the event of accidental spillage. According to the MSDS for ferric sulfate, acute overexposure would result in irritation to the respiratory system if inhaled, burns, somnolence, diarrhea, tachycardia, shock, acidosis, and hematemesis if ingested, and irritation/corrosion to the eyes.

Polymer: Polymer would be delivered and stored in the form of a dry powder. On average, 100 50-pound bags would be stored. To prepare the polymer for water treatment use, it would be mixed and aged in a batch tank. The polymer system would produce an output concentration of a maximum of 0.5 percent. The materials of construction for storage tanks, pumps, piping systems, and all ancillary equipment would be compatible with the recommendation of the polymer supplier. According to the MSDS for polymer, acute exposure would result in mild eye and skin irritation, while inhalation would cause irritation to the nose, eyes, and throat.

Sulfuric Acid: Sulfuric acid would be delivered and stored in liquid form with a 20 percent concentration. The sulfuric acid would be stored in suitable tanks within an enclosed concrete containment structure with a 110-percent spill containment capability. The inner housing of the concrete containment structure would be coated for resistance to chemicals, and would be separated or divided from other chemicals to prevent mixing in the event of accidental spillage. Storage tanks would be manufactured of high-density polyethylene (HDPE). The materials of construction for pumps, piping systems, and all ancillary equipment would be iron, steel, polyvinyl chloride, or Viton for concentrated sulfuric acid, and glass, lead, or rubber for dilute sulfuric acid. According to the MSDS for sulfuric acid, acute overexposure would result in burns to any exposed area such as the eyes, skin, and respiratory tract.

Sodium Bisulfite: Sodium bisulfite would be delivered and stored in liquid form, and contained in suitable tanks within an enclosed concrete containment structure with a

110-percent spill containment capability. The inner housing of the concrete containment structure would be coated for resistance to chemicals, and would be separated or divided from other chemicals to prevent mixing in the event of accidental spillage. The sodium bisulfate would be a 20 percent concentration solution. The materials of construction for storage tanks, pumps, piping systems, and all ancillary equipment would be in accordance with the recommendation of the chemical supplier. According to the MSDS for sodium bisulfite, acute overexposure would result in severe burns and irritation to the skin, eyes, and mucous membranes. Inhalation may cause respiratory discomfort, and ingestion would result in burns to the gastrointestinal system and possibly death.

Ammonia: Ammonia would be delivered and stored in liquid form, and would be stored in a 1,000 gallon tank with a 110-percent spill containment structure. The storage tank would be constructed of high-density polyethylene (HDPE) or fiberglass-reinforced polyester (FRP). All piping, pumps, valves, and other ancillary equipment would be manufactured of materials compatible with the intended service. Generally, polyvinyl chloride (PVC) would be used for low-pressure conveyance piping, and lined Teflon for high-pressure conveyance piping. According to the MSDS for ammonia, acute overexposure would result in burns to the gastrointestinal tract, skin, eyes, mucous membranes, and respiratory tract.

It should also be noted that feed pumps for sodium hypochlorite, ferric, sulfuric acid, and sodium bisulfite would be hydraulically actuated diaphragm-type or peristaltic type chemical metering pumps equipped with a variable frequency drive. The polymer pumps would be single stage, progressive cavity displacement pumps. Lime slurry would be conveyed to the application points with hose type positive displacement pumps.

The project would incorporate numerous leak and spill containment measures to minimize the risk of upset to both on-site employees and surrounding uses, consistent with all Federal, State, County and City regulations. As stated previously, hazardous materials would be utilized for three components of desalination facility operation: 1) periodic cleaning of the RO membranes which filter impurities from seawater; 2) treatment of potable product water; and 3) storage of diesel fuel for emergency backup electricity generators at the off-site underground pump stations. All hazardous materials would be stored in concrete containment structures with a 110-percent spill containment capability. If necessary, the inner housing of the concrete containment structure would be coated for resistance to chemicals, and each structure would be separated or divided from other chemicals to prevent mixing in the case of accidental spillage. All storage tanks would be constructed of appropriate, non-reactive materials, compatible with the recommendations of the supplier of the hazardous material.

In the event of an accidental liquid chemical spill, the chemical would be contained within the concrete containment structure and evacuated through an individual drainage system. The spilled chemical would then be pumped into hazardous waste containment trucks and transported off-site for disposal at an appropriate facility accepting such waste. This operation would be completed by a specialized contractor licensed in hazardous waste handling and disposal. Appropriate agencies, such as the City of Huntington Beach Fire and Police Departments, would also be contacted if necessary. It should also be noted that the existing containment berms along the northern and eastern boundaries of the proposed desalination site would further minimize the potential release of hazardous materials into the adjacent Huntington Beach Channel and wetlands.

The chemical conveyance piping system connecting chemicals from their storage areas to their points of application would be protected from leaks utilizing one of the following leak protection measures:

- Use of piping with double containment walls to prevent potential chemical leaks from reaching the soil or groundwater; and
- Installation of chemical conveyance and feed pipelines in designated plastic or concrete trenches that would contain potential leaks and drain the leaking chemical(s) to a designated containment sump or tank, from where the chemical(s) would be evacuated and disposed of in compliance with all applicable federal, state, and local codes.

On average, seven trucks per week can be expected to deliver chemicals to the proposed desalination project site (during business days, Monday through Friday), which is considered consistent and compatible with the site's designation as an industrial area. The transportation of hazardous materials to the desalination facility would comply with all Caltrans regulations. The facility would utilize registered haulers to further reduce the potential for accidental release or exposure of these hazardous materials to the environment and individuals during transport.

The desalination facility operator would develop hazardous waste management and safety plans in accordance with City, Occupational Health and Safety Association (OSHA), and United States Environmental Protection Agency (EPA) requirements. In accordance with OSHA regulation 29 CFR 1910.119, operation of the proposed facility would require the preparation of a Process Safety Management Program (PSM), which is designed to prevent or minimize the consequences of catastrophic releases of toxic, reactive, flammable, or explosive chemicals. This PSM would provide the following preventative components:

- Employee participation plan;
- Process safety information;
- Process hazard analysis;
- Written operating procedures;
- Employee training requirements and written training programs;
- Inspection and maintenance program to document mechanical integrity;
- Preventative maintenance program;
- Contractor training requirements;
- Hot work cutting and welding permit procedures;
- Pre-startup safety review and management of change procedures;
- Compliance audit procedures;
- External emergency/non-emergency notification;
- Facilities training requirements; and
- Reportable quantities of on-site chemicals.

The project would also be in compliance with EPA Risk Management Planning (RMP) Rule 40 CFR 68, which would require the facility operator to register the facility with the EPA prior to on-site storage of hazardous chemicals. For security purposes, the desalination facility would allow site access to authorized personnel only via a secured entry point with a 24-hour guard. Impacts in regards to the long-term operational use, storage, and transport of hazardous materials involved in desalination facility operation are not anticipated to be significant.

Off-Site Pipeline Alignments and Underground Pump Stations

Proposed Pipeline Alignments

As stated above, the proposed off-site pipeline alignments would occur adjacent to a variety of land uses, primarily within existing street right-of-way and easements. No known areas of hazardous materials exist along the proposed alignments. In addition, hazardous materials impacts due to long-term operation of the pipelines are not anticipated to occur, as the only liquid proposed for conveyance is potable water.

OC-44 Pump Station

As stated previously in Section 3.0, *PROJECT DESCRIPTION*, two diesel-powered emergency backup electrical generators would be required for underground pump station implementation. Diesel fuel would be stored within an 8,700-gallon double walled tank with a diameter of eight feet and a height of 26 feet. The City of Irvine Fire Department (which provides service to the OC-44 pump station site) has no preference for either an aboveground or underground storage tank. However, an underground storage tank would be provided since the entire pump station vault would be located below grade, including the diesel generators. The storage tank would be located nearby but separate from the pump station vault and would feature a double-walled containment system with monitoring equipment to prevent and detect leakage. The tank would be contained within the surrounding soil and would supply diesel fuel to the generators (housed within the pump station vault) during power emergencies. Refilling of the tank would occur from the surface via filling ports, similar to the refilling process at a commercial gas station.

The proposed 8,700-gallon diesel fuel storage tank would be placed entirely underground and would be double walled as a preventative measure for leaks and spills. The tank would be buried separate from the underground vault containing the pump station and diesel-fueled emergency back-up electrical generators. In addition, monitoring equipment would be provided to prevent and detect leakage. Because the diesel storage tank would be placed underground and adequate safety measures would be implemented, impacts in regards to the off-site use, storage, and transport of hazardous materials are not anticipated to be significant.

Coastal Junction Pump Station

The Coastal Junction pump station would also require the storage of diesel fuel for the operation of one emergency backup electrical generator. As only one backup electrical generator would be needed, diesel storage capacity would be 1,300 gallons. This diesel fuel would be stored in a similar manner as the OC-44 pump station, and the same safety precautions (double-walled containment system, leakage monitoring equipment) would be incorporated into pump station design. Impacts in this regard are not anticipated to be significant.

MITIGATION MEASURES

None required, other than project design implementation of existing regulations and requirements.

UNAVOIDABLE SIGNIFICANT IMPACTS

None have been identified.